

WHAT IS CLAIMED IS:

- 1 1. A method for modifying printing based upon direct on-the-fly media
- 2 characteristic parameters, comprising:
 - 3 on-the-fly directly measuring at least one print media characteristic
 - 4 parameter; and
 - 5 modifying in real-time printing by a print device in response to the at least one
 - 6 on-the-fly directly measured print media characteristic parameter.
- 1 2. The method of claim 1 wherein the on-the-fly directly measuring
- 2 comprises scanning the media with a scanner.
- 1 3. The method of claim 2 wherein the scanner is a CCD camera.
- 1 4. The method of claim 2 wherein the scanner is used to determine
- 2 whether toner is properly adhering to the media.
- 1 5. The method of claim 4 wherein the scanner is a CCD camera.
- 1 6. The method of claim 1 wherein the modifying comprises applying a
- 2 surface coating on the media before printing.
- 1 7. The method of claim 6 wherein the surface coating is applied to only
- 2 one side of the media.
- 1 8. The method of claim 6 wherein the surface coating is applied to both
- 2 sides of the media.

1 9. The method of claim 1 wherein the modifying comprises hot rolling the
2 media before printing.

1 10. The method of claim 9 wherein the hot rolling comprises flattening
2 rough fibers and drying the media.

1 11. The method of claim 9 wherein the hot rolling is implemented after the
2 application of a coating to cure the coating.

1 12. The method of claim 9 wherein the hot rolling is implemented prior to
2 the application of a coating to lower the moisture content of the media, the lowering
3 of the moisture content improving coating coverage and adhesion.

1 13. The method of claim 1 wherein the on-the-fly directly measuring further
2 comprises measuring a quality of print for the media.

1 14. The method of claim 13 wherein the quality of print comprises print
2 marking adhesion.

1 15. The method of claim 14 wherein the print marking is toner.

1 16. The method of claim 13 wherein measuring comprises detecting the
2 quality of print using at least one scanner.

1 17. The method of claim 16 wherein the scanner is a CCD camera.

1 18. The method of claim 14 further comprising applying a coating to
2 promote adhesion when the print marking adhesion is poor.

1 19. The method of claim 1 wherein the modifying further comprises
2 adjusting halftone screens for media surface and absorption characteristics.

1 20. The method of claim 19 wherein the halftone screens are adjusted for
2 spatially varying dot gain.

1 21. The method of claim 19 wherein the halftone screens are adjusted for
2 excessive dot gain.

1 22. The method of claim 19 wherein the halftone screens are adjusted to
2 prevent bleed through for thin media.

1 23. The method of claim 1 wherein the measuring comprises detecting
2 print quality, the method further comprising adjusting toner concentration when the
3 print quality is poor.

1 24. The method of claim 1 wherein the measuring further comprises
2 measuring mottle effects in the media.

1 25. The method of claim 24 wherein a scanning element is used to detect
2 the mottle effects.

1 26. The method of claim 25 wherein the scanner comprises an array of
2 scanning elements placed early in the media path.

1 27. The method of claim 26 wherein the array is a one dimensional array.

1 28. The method of claim 26 wherein the array is a two dimensional array.

1 29. The method of claim 1 wherein the measuring further comprises
2 illuminating the media from behind using a bottom light source and collecting a
3 resulting transmitted image using scanning elements.

1 30. The method of claim 1 wherein the measuring further comprises
2 reflecting light off of the media using a top light source.

1 31. The method of claim 1 wherein the measuring further comprises
2 illuminating the media from behind using a bottom light source and collecting a
3 resulting transmitted image using scanning elements and reflecting light off of the
4 media using a top light source.

1 32. The method of claim 1 wherein the modifying comprises adjusting a
2 print algorithm.

1 33. The method of claim 32 where the print algorithm is adjusted to
2 compensate for mottle in the media.

1 34. The method of claim 32 wherein the detection of mottle in the media
2 drives a local coating system for selectively applying a coating on the media.

1 35. The method of claim 1 wherein the print device is a printer.

1 36. The method of claim 1 wherein the print device is a digital copier.

1 37. A print device, comprising:
2 a marker system for rendering a page layout on a medium; and
3 a processing system, coupled to the marker system, the processing system
4 directly measuring at least one print media characteristic parameter on-the-fly and
5 modifying in real-time printing by the print device in response to the at least one on-
6 the-fly directly measured print media characteristic parameter.

1 38. The print device of claim 37 wherein at least one scanner provides
2 measurements of the at least one print media characteristic parameter.

1 39. The print device of claim 38 wherein the scanner is used to determine
2 whether toner is properly adhering to the media.

1 40. The print device of claim 37 further comprising a coating applicator
2 coupled to the processor for applying a surface coating on the media before printing.

1 41. The print device of claim 40 wherein the coating applicator applies a
2 coating to only one side of the media.

1 42. The print device of claim 40 wherein the coating applicator applies a
2 coating to both sides of the media.

1 43. The print device of claim 37 further comprising hot rollers for hot rolling
2 the media before printing.

1 44. The print device of claim 43 wherein the hot rollers flatten rough fibers
2 and dry the media.

1 45. The print device of claim 43 wherein the hot rollers are used for hot
2 rolling the media after the application of a coating to cure the coating.

1 46. The print device of claim 43 wherein the hot rollers are used for hot
2 rolling prior to the application of a coating to lower the moisture content of the media,
3 the lowering of the moisture content improving coating coverage and adhesion.

1 47. The print device of claim 43 further comprising at least one scanner for
2 measuring a quality of print for the media.

1 48. The print device of claim 47 wherein the quality of print comprises print
2 marking adhesion.

1 49. The print device of claim 48 wherein the print marking is toner.

1 50. The print device of claim 47 further comprising a coating applicator for
2 applying a coating to promote adhesion when the print marking adhesion is poor.

1 51. The print device of claim 37 wherein the marker adjusts halftone
2 screens for media surface and absorption characteristics.

1 52. The print device of claim 37 wherein the marker adjusts halftone
2 screens for spatially varying dot gain.

1 53. The print device of claim 37 wherein the marker adjusts halftone
2 screens for excessive dot gain.

1 54. The print device of claim 37 wherein the marker adjusts halftone
2 screens to prevent bleed through for thin media.

1 55. The print device of claim 37 further comprising at least one scanner for
2 detecting a print quality, wherein a toner concentration is adjusted when the print
3 quality is poor.

1 56. The print device of claim 37 further comprising a scanner to detect
2 mottle effects.

1 57. The print device of claim 56 wherein the scanner comprises an array of
2 scanning elements placed early in the media path.

1 58. The print device of claim 57 wherein the array is a one dimensional
2 array.

1 59. The print device of claim 57 wherein the array is a two dimensional
2 array.

1 60. The print device of claim 37 further comprising a bottom light source
2 for illuminating the media from behind and a scanner for collecting a resulting
3 transmitted image.

1 61. The print device of claim 37 further comprises a top light source for
2 reflecting light off of the media.

1 62. The print device of claim 37 further comprising a bottom light source
2 for illuminating the media from behind and scanner for collecting a resulting
3 transmitted image and a top light source for reflecting light off of the media.

1 63. The print device of claim 37 wherein scanner provides the processor a
2 control signal to adjust a print quality measurement algorithm.

1 64. The print device of claim 63 where the print algorithm is adjusted to
2 compensate for mottle in the media.

1 65. The print device of claim 63 wherein the processor upon receiving a
2 signal indicating mottle in the media drives a local coating system for selectively
3 applying a coating on the media.

1 66. The print device of claim 37 wherein the print device is a printer.

1 67. The print device of claim 37 wherein the print device is a digital copier.

1 68. An article of manufacture comprising a program storage medium
2 readable by a computer, the medium tangibly embodying one or more programs of
3 instructions executable by the computer to perform a method for modifying printing
4 based upon direct on-the-fly media characteristic parameters, the method
5 comprising:

6 on-the-fly directly measuring print media characteristic parameters; and
7 modifying in real-time printing in response to the on-the-fly directly measured
8 print media characteristic parameters.